

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
28 October 2004 (28.10.2004)

PCT

(10) International Publication Number
WO 2004/092741 A2

(51) International Patent Classification: G01N 33/68

(21) International Application Number:
PCT/US2004/011905

(22) International Filing Date: 14 April 2004 (14.04.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/462,870 14 April 2003 (14.04.2003) US

(71) Applicant (for all designated States except US): MONTANA STATE UNIVERSITY [US/US]; 304 Montana Hall, Bozeman, MT 59718-4011 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): DRATZ, Edward, A. [US/US]; 500 Concord Drive, Bozeman, MT 59715 (US). MUMEY, Brendan, M. [US/US]; 2485 Amica Drive, Bozeman, MT 59715 (US). JESAITIS, Algirdas, J. [US/US]; 27 Annette Park Drive, Bozeman, MT 59715 (US).

(74) Agents: SILVA, Robin, M. et al.; 4 Embarcadero Center, Suite 3400, San Francisco, CA 94111 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

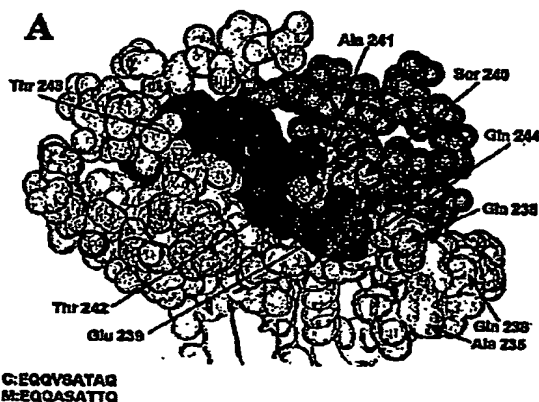
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM,

[Continued on next page]

(54) Title: MAPPING DISCONTINUOUS ANTIBODY OR APTAMER EPITOPES FOR PROTEIN STRUCTURE DETERMINATION AND OTHER APPLICATIONS



Proposed hairpin
conformation of
the C3 loop residues
235-240 in rhodopsin

(57) Abstract: The present invention is directed to methods of mapping antibody or aptamer epitopes for use in a variety of utilities including the elucidation of the tertiary structure of proteins. A method of the invention, antibody imprinting, uses antibodies or aptamers against target proteins and random peptide probe libraries to map the epitopes of antibody binding sites on target proteins.